

Applicant: Chotkowski et al.
Application No.: 10/731,760

REMARKS

Double Patenting Rejection

Claims 1-36 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-35 of copending Application No. 10/730,671. Claims 1-26 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-26 of copending Application No. 10/845,929. It is believed that the Examiner made a typographical error in regard to this Application No. and that the correct Application No. is 10/845,829.

A Terminal Disclaimer based on U.S. Patent Application Nos. 10/730,671 and 10/845,829 is submitted herewith to overcome the obviousness-type double patenting rejections. The withdrawal of the obviousness-type double patenting rejections is respectfully requested.

Claim Rejections - 35 USC § 102(e)

Claims 33-36 stand rejected under 35 U.S.C. 102(e) as being anticipated by US Application No. US2004/0204108 to Etkin et al., hereinafter referred to as "Etkin".

Applicant: Chotkowski et al.
Application No.: 10/781,760

Claim 33 recites a method for coordinating the use of beam forming between two communicating entities comprising the step of:

reducing at least one adjustment parameter of a beam of at least one of two communicating entities communicating with each other using beamed formed transmission and reception signals ...

Etkin discloses a method where the base station turns off the forward power modulator (FPM) and turns on a time-invariant broad antenna gain pattern if the number of mobile stations is less than a lower threshold (See paragraph 44 of Etkin.).

Unlike the present invention, Etkin is not related to adjusting the alignment of beams emanating from two communicating entities. Instead, Etkin is directed to the adjustment of beam width and induced SNR fluctuations in accordance with the number of mobile stations in a sector to maximize the throughput of the base station. (See paragraphs 0020, 0023, 0024 and 0030 of Etkin.). More specifically Etkin discloses, "if the number of mobile stations is greater than or equal to a higher threshold N_2 , the beam width is set to a small value and the fluctuation rate is set to a high value R_2 " (See paragraph 44 of Etkin.). In contrast to the method disclosed in Etkin, the method of claim 33 is not dependent on the number of base stations.

Applicant: Chotkowski et al.
Application No.: 10/731,760

Furthermore, Etkin does not anticipate claim 33 because it does not disclose a method of coordinating beam forming between communicating entities. Instead it simply describes a method of beam forming (See paragraph 47 of Etkin.). Clearly the creation of the beams as disclosed in Etkin and the coordination of multiple beams from multiple entities are fundamentally different activities. As such the disclosure of Etkin does not anticipate claim 33.

As a final note, the method disclosed in Etkin is time-invariant (See paragraph 44 of Etkin.). In contrast claim 33 of the present invention recites a method "...wherein a degree of alignment between beams emanating from the two entities is above a predetermined level for a predetermined length of time". As this claim is clearly time dependent it is further distinguishable over Etkin.

Claims 34-36 are dependent on claim 33 and are allowable for the reasons stated above.

Claim Rejections - 35 USC § 103(a)

Claims 1-5, 23-28, and 29-32 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Etkin in view of U.S. Patent No. 6,894,643 to Guo et al., hereinafter referred to as "Guo".

With respect to claims 1, 23, and 27, the claims recite coordinating the use of beam forming between two communicating devices with beam forming

Applicant: Chotkowski et al.
Application No.: 10/731,760

capabilities whereby the transmitted beams are aligned with each other using the measured error in alignment between the two beams. As explained above, Etkin fails to teach both a method of coordinating beam patterns of multiple beam forming devices communicating with each other and also fails to teach the method of aligning their respective communicating beams.

In Etkin, a base station adjusts beam width and SINR fluctuations based on the number of mobile stations in a sector served by the base station. Etkin further discloses that for a small number of users a broader beam is better whereas a highly directional beam is better for large number of users. Etkin is related to an effect of beam sweeping by the base station. Contrary to the present invention Etkin fails to disclose a scheme of measuring an error in alignment of two beams emanating from two communication entities, determining a correction factor based on the measured error, and readjusting the beams to realign the two beams.

Guo teaches a method where the output signal is compared with a reference signal using a substitution element to create a difference signal. This difference signal is then used to adjust the weights applied to multipliers. Guo differs from the method recited in claims 1, 23, and 27 of the present invention in several important ways. First, the compared signals in the present invention are compared to each other and not, as is taught in Guo, to a standard reference signal. This is distinguishable from Guo as Guo fails to teach a method having two beams

Applicant: Chotkowski et al.
Application No.: 10/731,760

emanating from two different entities. Second the error that is being measured in the present invention is the error in one alignment of two transmitted signals, not the error between an output signal and a reference signal. Finally the present invention does not use its error measurement to create a separate signal. Rather the error measured is used to align beams from two separate entities.

Accordingly, it is submitted that claims 1, 23, and 27 are allowable over Etkin in view of Guo. Claims 2-5, 24-26, and 28-32 are dependent upon claims 1, 23, and 27, respectively, which the Applicants submit are allowable over the cited prior art for the same reasons provided above with regards to claims 1, 23, and 27.

Claims 6-11 and 19-22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Etkin and Guo in further view of U.S. Patent No. 6,665,545 to Raleigh et al., hereinafter referred to as "Raleigh".

With respect to claims 6 and 19, for the reasons stated above with regards to claims 1, 23, and 27, any combination of Etkin and Guo fails to teach the methods of claims 6 and 19. Further, Raleigh only teaches a method having a calibration factor for the transmit and receive signals of a single unit (See col. 21, lines 35-36 of Raleigh.). Raleigh does not disclose a method comprising the steps of identifying a first correction factor for the first entity and identifying a second correction factor for the second entity.

Applicant: Chotkowski et al.
Application No.: 10/731,760

Accordingly, it is submitted that claims 6 and 19 are allowable over Etkin and Guo in further view of Raleigh. Claims 7-11 and 20-22 are dependent upon claims 6 and 19, respectively, which the Applicants submit are allowable over the cited art for the same reasons provided above with regards to claims 6 and 19.

Claims 12-18 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Etkin, Guo, and Raleigh in further view of U.S. Patent No. 6,768,454 to Kingsley et al., hereinafter referred to as "Kingsley".

With respect to claim 12, for the reasons stated above with regards to claims 1, 23, 27, 6, and 19, any combination of Etkin, Guo and Raleigh fails to teach the method of claim 12. As such, any combination, in whole or in part, with Kingsley would not teach the method of claim 12.

Accordingly, it is submitted that claim 12 is allowable over Etkin, Guo, and Raleigh in further view of Kingsley. Claims 13-18 are dependent upon claim 12, which the Applicants submit are allowable over the cited art for the same reasons provided above with regards to claim 12.

Applicant: Chotkowski et al.
Application No.: 10/731,760

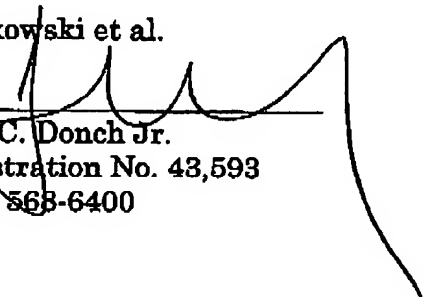
CONCLUSION

If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephone interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

In view of the foregoing remarks, Applicants respectfully submit that the present application, including claims 1-36, is in condition for allowance and a notice to that effect is respectfully requested.

Respectfully submitted,

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Enclosures